

# PATENT ABSTRACTS OF JAPAN

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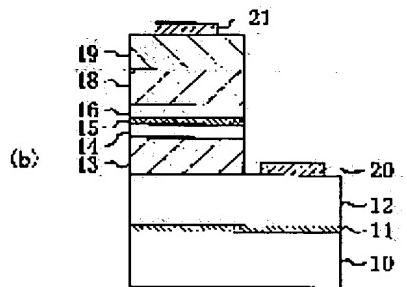
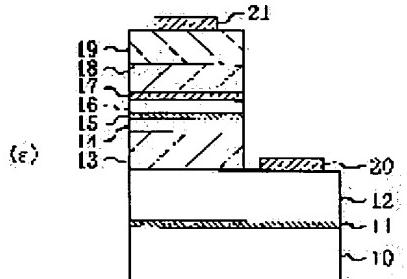
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## (54) MANUFACTURE OF SEMICONDUCTOR AND SEMICONDUCTOR DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To form a p-n junction having a steep dopant profile in a gallium nitride semiconductor.

SOLUTION: On a sapphire substrate 10, an n-type GaN contact layer 12, an n-type Al<sub>0.1</sub>Ga<sub>0.9</sub>N clad layer 13, a first GaN light guide layer 14, an In<sub>0.20</sub>Ga<sub>0.80</sub>N quantum well active layer 15, and a second GaN light guide layer 16 are successively formed. On the upper surface of the second light guide layer 16, an Al<sub>0.1</sub>Ga<sub>0.9</sub>N diffusion suppressing layer 17 having a film thickness of 20 nm and doped with Mg as a p-type dopant and Si as an n-type dopant is formed and, on the upper surface of the layer 17, a p-type Al<sub>0.1</sub>Ga<sub>0.9</sub>N clad layer 18 is formed.



## LEGAL STATUS

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